



Position Paper

Providing a

Concept For The European Defence Research Programme (EDRP)

22 September 2017

About ASD

The AeroSpace and Defence Industries Association of Europe represents the aeronautics, space, defence and security industries in Europe in all matters of common interest with the objective of promoting and supporting the competitive development of the sector. Its membership comprises major European aerospace and defence companies as well as national associations.

Context

In the European Defence Action Plan of November 2016, the European Commission announced its intention to launch a substantive European Defence Fund for research and capability development: The so-called research window consists of the Preparatory Action (PA) mobilising €90 million from 2017 to 2020 for defence research, and a much bigger follow-on European Defence Research Programme (EDRP) as of 2021. For the capability window, the EC proposes a European Defence Industry Development Programme (EDIDP) worth €500 million for 2019/20, to be followed from 2021 onwards by a much bigger development programme. In total, the EC proposes to invest €500 million/year for defence R&T (EDRP), and €1 billion/year on capability development (EDIDP2) from the EU-budget under the next Multiannual Financial Framework (MFF).

ASD welcomes and supports the European Defence Fund and the Commission's ambition for defence as part of the next MFF. At the same time, there are a number of factors that industry believes need to be taken into account in planning both the research and the capability window of the European Defence Fund. These derive both from the specificities of the defence sector, and from the current export-dependent state of the industry, as a result of decades of declining defence expenditure, as a proportion of GDP, within Europe.

This paper focusses on the envisaged EDRP and outlines key features that a future EU-funded defence research programme should have to become a success.

Rationale and driving factors

The European Defence Action Plan and the European Defence Fund aim at supporting Member States to develop the capabilities needed for the implementation of the EU's Global Strategy on Foreign and Security Policy presented in July 2016. With a view to strengthening European defence, the Global Strategy sets the following **political goals**:

- a) Europe must take greater responsibility for its defence;
- b) Europe must be ready and able to deter, respond to, and protect itself and its citizens from external threats;
- c) Europe must be better equipped, trained and organised to contribute decisively to collective efforts, as well as to act autonomously when necessary.

Based on the Global Strategy, the Council Conclusions of 14 November 2016 set the level of ambition for European defence and defined the EU's **strategic priorities as being** to contribute to:

- a) responding to external conflicts and crises,
- b) building the capacities of partners (third countries), and
- c) protecting the Union and its citizens.

Both the Global Strategy and the European Defence Action Plan highlight the need for Europe to develop an **appropriate level of strategic autonomy** to become a credible actor and partner in defence. They also make it clear that this autonomy can only be achieved through European **cooperation** and must include a competitive defence **industry** capable of developing the technologies needed for key defence capabilities.

Principles

This political framework enables us to identify a series of principles for the future EU defence research programme:

- Research is the basis for future defence capabilities and where cooperation between Member States should start. The EDRP is therefore crucial for achieving the Global Strategy's objectives and must be supported by an **ambitious budget** that can make a difference;
- The nature of defence means that R&T investment decisions under the future EDRP must be **driven by capability needs**. This does not exclude a limited level of more speculative investment on emerging technologies in order to prepare for future innovative options and to guard against 'future shock', but even this must have some prospect of eventual application in defence systems and products.
- The EDRP should focus on **key capability areas which are critical for Europe's freedom to decide and act**. Spending EU money on secondary needs would help neither our armed forces, nor industry, and not provide the EU with the aspired level of strategic autonomy.
- Strategic autonomy has a **strong industrial dimension**. The EDRP must therefore enable European industry to be and remain at the leading edge of technology in key capability areas.
- Technological superiority over potential adversaries is the ultimate objective of defence research. The EDRP must therefore have **technological excellence, linked to clear military operational applicability**, as its guiding principle. Other policy objectives like regional development or cohesion are better served by other EU instruments.
- The EDRP must demonstrably show **EU added value**. This means that it must support objectives that Member States cannot (better) achieve individually. Consequently, it must focus on capabilities that go beyond the means of individual Member States and / or on areas which help Member States to join their efforts. Moreover, it must complement and be coordinated both with other relevant institutional activities on defence, especially NATO, and with the Member States' own investment in defence capabilities.
- The EDRP must foster cooperation and drive the **generation of cooperative projects and programmes** that involve multiple Member States. Without such programmes, the European defence industry will struggle to maintain its current competitiveness, and could face long-term decline. Hence any investment in R&T needs to be linked to the prospect, whether shorter or longer term, of future procurement.
- The current lack of such programmes is due to a lack of resources, but also to the reluctance of the Member States to synchronise their demand and harmonise their requirements, or to compromise on interdependency/share sovereignty. This has also impacted negatively on the competitiveness of European industry and hindered cross-border consolidation. The EDA-sponsored studies on Future Land Systems and Future Air Systems illustrate the consequences of these problems and identify some measures needed to counteract them. The EDRP should build on these findings and become a **catalyst for the harmonisation of national requirements**.
- The EDRP should build on a **robust defence capability planning process** at the EU level that captures all Member States capability needs and identifies those that should be addressed in cooperation and supported by EU-funding. The latter should target the level of ambition and

political goals set at EU level, catalyse harmonisation of military demand of Member States and foster industry consolidation within Europe. National investments can thereby focus more on Member States' specific needs.

- The EDRP must be supported by a **significant budget** to make a difference. The European Commission's intention to propose a budget of €500mio per year is therefore welcome. However, this effort at the EU-level should not lead to a corresponding reduction of Member States' defence research expenditures at the national level or through intergovernmental cooperation, otherwise there will be no net benefit.

Implementation

When implementing these principles into a concrete research programme, the following aspects should be taken into account:

- The front end of developing capability requirements is rightly the preserve of the military, but it is essential that **industry is closely involved in translating these requirements into a capability plan**. This is because industry brings knowledge of the 'art of the possible' in terms of risks, costs, feasible timescales, potential solution trade-offs, etc.
- In planning technology investment, it is necessary to **consider the whole life cycle of the technology domain**. Thus, actions are needed from the lower level of maturity (upstream technology) to the higher levels, resulting in full development taking into account short-, mid- and long-term capability needs.
- While different parts of the capability/ R&T cycle may be sponsored in different institutional and legal frameworks, **it is essential that the planning for the whole cycle is integrated**. Hence, there is a need for a holistic approach to planning EU defence capability investment across the research and the capability windows of the EDF (EDRP and DIDP successor). This holistic approach must operate in two dimensions: First capability development and R&T need to be planned together (through roadmaps), with an eye on downstream programmes. Second the planning needs to be coordinated closely between the EU, Member States MoDs and the defence industry.

Based on all the above, the EDRP will need a specific **governance model** that ensures fruitful interaction between the EU as the sponsor of defence research, industry as the main research actor and Member States as the development funders (or co-funders) and ultimate procurers/launch customers.

We are aware that the governance issue raises a number of thorny and sensitive political, institutional and legal questions that cannot be isolated from the broader debate on the structure of the next MFF and the relationship between the EDRP and the next Framework Programme. However, no matter what concrete form it will take, we are convinced that governance model must be able to ensure in particular:

- a) an effective link between capability planning and research,
- b) close coordination between the research and the capability window of the EDF (EDRP and EDIDP2),
- c) full complementarity with other (national, international and EU) research programmes, and
- d) close involvement of industry.

Moreover, the EDRP will need **modalities** adapted to the specificities of the defence sector. In particular the IPR regime, funding rates and eligibility criteria will have to differ considerably from civil EU research programmes. Benchmarks should not only be Member States' national research programmes, but also those of non-EU competitors.

Technology content

In November 2016, the Council identified a number of **capabilities in which Europe needs to invest adequately and develop collaborative approaches**, based on the Global Strategy. These include: ISR (Intelligence, Surveillance and Reconnaissance, RPAS (Remotely Piloted Aircraft Systems), satellite communications, autonomous access to space, permanent earth observation, response to hybrid threats, cyber and maritime security and force protection.

Based on the EU Global Strategy and the level of ambition outlined in these Council Conclusions, **prioritised capability areas** can be identified, which themselves serve to define the investments needed to underpin the the EU's political level goals:

- a) A better **understanding of the threat environment**. This involves identifying the full picture of existing and emerging military threats developing around the EU, providing enhanced situational awareness and intelligence. This will require work in all domains - air, land, sea, space and cyberspace.
- b) A better **ability to respond to external threats to the EU**, including those which threaten the territorial integrity of the Union. This will necessitate development of integrated platforms and systems, with improved use of both manned and unmanned platforms and new effectors. Anticipated threats include hybrid and cyber. This will involve the EU working with partners, including NATO.
- c) A better way to **coordinate responses effectively**. The EU's defence capabilities are, and will most likely remain, based on the military capabilities of the individual Member States. The dissemination, analysis and interpretation of a certain scenario, derived situational awareness technologies, and the following response by integrated platforms (manned/unmanned), require a coordinated command and control structure, which needs to be enhanced and executed jointly by Member States.

While the primary drivers for technology investment decisions need to be **capability based**, addressing both short and long-term needs, there are other aspects that also need to be taken into account in planning investment decisions at EU level. These include industry competitiveness and European self-sufficiency for technologies that are, or will be in the future, critical for defence. In order to ensure a greater degree of European autonomy and freedom of action in defence, Europe needs to ensure that it has access to such technologies through its indigenous defence industrial base.

Industry believes that a major proportion of the EDRP investment should be devoted to **technology demonstrators that will support future joint programmes**. Indeed, these should act as an incentive for Member States to launch development programmes, some of which will attract the financial support of the EU through DIDP and the subsequent Capability Window. Cooperative acquisition of the resulting systems by multiple Member States should follow.

Another important area for investment under the EDRP is **interoperability and common standards**. This is to enable the armed forces of Member States to communicate and interoperate, and to allow the military to work with civil authorities and non-Governmental organisations. Also vital are harmonised standards and open system architectures for future land, air and naval platforms, and for the integration of weapon and sensor systems onto these platforms.

EDRP Investment is also required in a number of **technologies critical for defence**, for which Europe is either dependent on external sourcing, or threatened with being so, and the number of such technologies is in danger of increasing. This dependency threatens not only European Member States' operational freedom of action, but also the competitiveness of the European defence industry. An example is provided by certain key semiconductor related technologies, which if not accessible from European industry, risk being subject to restrictions such as ITAR, or only available from sources with security concerns. It is noteworthy that the Preparatory Action (PA) plans to address this issue, but its resolution will require investments at a level far greater than is envisaged through the PA.

Finally, some investment needs to be dedicated to **longer term and emerging technologies**, which have the potential to be 'game changers' for defence. Exploring them will help Europe to stay at the technological leading edge, and also help prevent technological breakthrough by others ('future shock') taking Europe and European industry by surprise. An approach that should be investigated for supporting this category, and providing the necessary challenges, is whether a European variant of the DARPA process, used in the USA, would be appropriate as either all or part of the answer.

Last but not least, investment decisions under the EDRP should also take into account possibilities to **enhance European elements in, and the EU-added value of, NATO programmes**.

Modalities

Because of the specificities of defence systems and markets, rules and conditions for defence research differ greatly from those for civil and commercial research. For the PA, some of the rules of H2020 were adapted to defence specificities. Most of the PA modalities laid down in the Rules of Participation are well-suited for defence research and should also be used as a model for the EDRP (in particular the **IPR regime and the conditions for participation**). An exception, however, is the **funding rate** for research activities.

Funding schemes of current EU research programmes are built on the principle of public-private co-funding; they fund 100% of "eligible costs" but cover in practice only an average of 50% of the real industrial costs. From an industrial perspective, such a cost-sharing is an acceptable and recognised principle in commercial sectors, where companies can be expected to amortise the risks associated with the development of a new product in an open and relatively predictable market.

For defence activities, by contrast, where there is only one customer who determines the requirement specification and timetable, and also determines the export markets, companies cannot risk investing in R&T activities for a product that may never be acquired by the home customer, let alone subsequently sold to export customers. Consequently, it is standard practice in the EU and worldwide that the customer funds 100% of all major defence research activities, even if the funding mechanisms used may vary from country to country.

In the case of EU-funded defense research activities, the case for 100% funding is even more compelling, since the sponsor of R&T (the EU) is not the future customer (national MoD). Although the need for ensured market uptake of research results is well recognised as a condition for the success of the EDRP, there will, by definition, be no guarantee that research will lead to procurement. Co-funding of R&T activities would therefore imply an untenable financial risk for defence companies.

The future EDRP must take this into account and therefore operate under a funding scheme different from the traditional EU civil research programmes. Industry has reluctantly accepted the co-funding scheme for the PADR in order to avoid unduly delaying the programme, and can only afford to do so because the industry financial contribution is relatively small. For the much larger EDRP, the funding scheme must be fundamentally different if it wants to achieve its objective of addressing high-end defence technologies.

Conclusion

This paper has focused on initial considerations for the proposed European Defence Research Programme, from the perspective of the European defence industry. Although the start of the next MFF is still more than three years away, the specificities of the defence sector are such that it is not too early to begin preparing the EDRP. This paper has provided arguments for a capability driven approach and a need for EU institutions, industry, and Member States MoDs to work together holistically on this. Consequently, **the future EDRP and a possible development programme (EDIDP2) must be conceived and operated together.** External uncertainties mean that it is far too early to look specifically at research priorities and criteria for EDRP, but rather it is essential to focus on the total package of the European Defence Fund, i.e. both the capability and the research window. In this context, some first ideas have been raised for the 'capability areas' that should drive the approach, and for the categories of technology investment that should be supported.

Signed by Jan Pie, ASD Secretary General, on 22 September 2017
